
Delcam iQube 2010

Reference Help



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Contents

Introduction	1
Compliance	2
FCC	2
WEEE.....	2
Technical Specifications	4
Electrical Specifications	4
Permissible Environmental Conditions	4
Temperature Range	4
Safety Precautions	5
Understanding Warning Terms.....	5
Understanding Precaution Terms.....	6
Warnings	6
Cautions	8
iQube Parts List	9
Hardware Diagrams	10
Hardware diagram - legend.....	11
Setting up	12
Remove the Cover.....	13
Electrical Connection.....	13
Network Connection	15
Power-up the Scanner	15
Connecting to the Scanner	17
Test the Connection	21
Software Installation	23

System Requirements	23
Installation.....	23
Test.....	24
Using the Delcam Orthotic Insoles Software	26
Jobs Page	27
Adding a Job	27
Deleting a Job	28
Scan Page	29
Scan Model	31
Scan Settings	32
Changing the Default Scan Settings	34
Scan Mode	38
Export Page	41
Scanning Procedures	44
Scanning a Foot.....	44
Scanner Setup (Foot)	45
Orientation & Location (Foot).....	47
Scan Settings (Foot).....	47
Scanning a Foam Box Impression	48
Scanner Setup (Foam Box Impression)	49
Orientation & Location (Foam Box Impression)	51
Scan Settings (Foam Box Impression)	52
Scanning a Cast.....	53
Scanner Setup (Cast).....	53
Orientation and Location (Cast)	53
Scan Settings (Cast).....	54
Maintenance and Handling	55
Maintenance	56
Handling.....	56
Manufacturer Details	57
Index	59

Introduction

iQube is a simple but powerful 3D scanner specifically created for use in designing custom orthotic insoles.

iQube provides you with a versatile tool to produce high quality orthotics and insoles and improve the quality of service you are able to provide to your clients.

It allows you to scan what you want, when you want and how you want. Whether you need to scan a foot, a cast or a foam box impression, iQube can produce a high quality 3D image in approximately 3 seconds, saving you time and improving the quality of the output.

Using technology developed for the Aerospace industry, the iQube obtains a high level of detail using laser and multi camera configuration to produce a full colour 3D image that is accurate to within a hair's breadth. This high level of accuracy means that you get the custom orthotic right first time and minimise the inconvenience to your client.

iQube allows the foot to be scanned in non, partial and full weight bearing positions, allowing flexibility dependant upon the patient's needs.

The scanner is lightweight and compact, making it fully portable and comes with an optional carry case, allowing you to use it at different locations and transport it with ease. Once you have scanned the item you want, you can design and manufacture the custom orthotic insole using Delcam's OrthoModel software or your existing orthotic CAD/CAM software.

Compliance

FCC (see page 2)

WEEE (see page 2)

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Also please note the following statement that is on a sticker adhered to the base of the scanner body:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WEEE

WEEE stands for **Waste Electrical and Electronic Equipment** and refers to an E.U. directive regulating the disposal of electrical or electronic equipment, including all components, sub-assemblies and consumables, which are part of the products at the time of discarding.

European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (the **WEEE Directive**) stipulates that WEEE is now subject to regulations designed to prevent the disposal of such waste and to encourage design and treatment measures to minimize the amount of waste that is placed into the waste system.

The purpose of this legislation is to preserve, protect and improve the quality of the environment, protect human health, and stimulate the practical use of natural resources. Specifically, the WEEE Directive requires that producers of electrical and electronic equipment be responsible for the collection, reuse, recycling and treatment of WEEE which the Producer places on the EU market after August 13, 2005.

As an importer of electrical and electronic equipment (EEE), we have endeavoured to meet these environmental responsibilities for managing WEEE. The following information is to educate our customers about the WEEE collection process.

In order to avoid any potential dissemination of hazardous substances into the environment, the product has been labelled with the WEEE symbol (see below) in order to alert the end-user that it should be disposed of within the proper waste management system. That system will recycle, reuse, and dispose of materials from this product in an environmentally sound way.



The symbol found on the Delcam product label, indicates that the product meets the European Directive 2002/96/EC on Waste and Electronic Equipment. This symbol, only applicable in European Union countries, indicates that when this product reaches the end of its life it should not be disposed of with normal household or municipal waste, but in an established waste stream for WEEE.

Each EU Member State country has established a system for the collection, disposal, and recycling of WEEE. End-users in the EU should contact their local waste administration system for collection instructions concerning this product.

Technical Specifications

The following sections comprise the Technical Specifications:

Electrical Specifications (see page 4)

Permissible Environmental Conditions (see page 4)

Temperature Range (see page 4)

Electrical Specifications

- Voltage AC 100 V – 240 V / 120 W
- Main supply voltage fluctuations up to +/- 10% of the nominal

Permissible Environmental Conditions

- For Indoor Use Only
- Maximum relative humidity 80% for temperatures up to 31 deg C decreasing linearly to 50% relative humidity at 40 deg C
- Vibration (55 to 2000Hz): $\leq 100\text{ms/s}^2$ EN 60 068-2-6
- Shock (6ms): $\leq 1000\text{ms/s}^2$
- Altitude: Up to 2000m

Temperature Range

- Storage Temperature: 5 deg C to 40 deg C

- Ambient Temperature required for measuring operation: 20 deg C
+/- 10 deg C

Safety Precautions

This unit has been designed and tested to ensure reasonable personal protection and protection of the surrounding area against damage, and has been supplied in safe condition. The following precautions must be observed by the user to ensure safe operation and to retain the instrument in safe condition.

If this instrument is used in a manner not specified by the manufacturer, the protection provided by this instrument may be impaired.

Different safety precautions are described in the following sections:

Understanding Warning Terms (see page 5)

Understanding Precaution Terms (see page 6)

Warnings (see page 6)

Cautions (see page 8)

Understanding Warning Terms

Levels of injuries or damages that may occur when the instrument is used incorrectly without paying attention to descriptions of warnings or cautions are shown below.

Notation



DANGER

Description

Indicates the potentially hazardous situations which, if not heeded, should result in death or serious injury.



WARNING

Indicates the potentially hazardous situations which, if not heeded, could result in death or serious injury.



CAUTION

Indicates the potentially hazardous situations which, if not heeded, could result in minor or moderate injury or instrument damage.

Understanding Precaution Terms

Precautions that must be adhered to are shown below:

Notation

Description



Pay Attention



Do not perform



You must perform



Laser Safety Notice

Warnings

The following warnings highlight potentially hazardous situations which, if not heeded, could result in death or serious injury.



Do not attempt to damage the power cable and power plug.

Do not damage, modify, forcefully bend, twist, stretch, nor bind the power cable and power plug.

Do not put heat apparatus close to them nor a heavy object on them.

Using a damaged power cable or power plug may cause an electric shock, short-circuit, smoke and fire.



Clean dust off the power plug periodically.

Any dust on the plug may cause insulation failure due to absorbed moisture. It may further result in smoke and fire.

Disconnect the power plug to wipe it with a dry cloth.



Operate the unit at the specified voltage.

This instrument must be operated within the AC supply voltage range as indicated on the rear panel and / or an attached tag to the power cable on which the voltage is marked, and frequency of power supply must be 50 or 60 Hz. Otherwise, smoke or fire may break out.

Nominal	Range
AC 100 V – 240 V	90 V – 260 V



Never insert or pull out the power cable with a wet hand.

Such an attempt may cause an electric shock.



Do not use the instrument in an explosive environment.

Never use the instrument in rooms having flammable or volatile gas or vapour, otherwise, an explosion may occur or a fire may break out.



Do not disassemble the instrument.

Disassembly may cause an electric shock or malfunction.

Removal of panels is likely to expose live parts. If any adjustment, maintenance or repair is inevitable, it shall only be carried out by a qualified service personnel who is aware of the hazard involved.



Laser Light – Do not stare into beam or view directly with optical instruments

Laser light can damage your eyes.



Do not exceed maximum weight of glass

Maximum Weight: 200KG

Do not jump on the glass.

Cautions

The following cautions highlight the potentially hazardous situations which, if not heeded, could result in minor or moderate injury or instrument damage.



Use the specified fuse.

Verify that the correct fuse is installed before supplying power.

Do not use unauthorized fuses. Otherwise, smoke or fire may break out.

Nominal	Fuse rating
AC 100 V – 240 V	3.14A 250V (T)



Do not use the device if it appears broken.

Otherwise, an electric shock, smoke or fire may break out.

Immediately turn off the instrument and disconnect the power cable. Then contact the dealer or representative from whom you purchased the instrument.



This instrument is equipped with a Class II laser.



Class II laser products are normally not capable of causing eye injuries, but can still be quite hazardous due to glare and temporary flash blindness. The human blink reflex occurs within 0.25 seconds of exposure to the Class II laser beam, provides adequate protection. However, it is possible to overcome the blink response and stare into the Class II laser long enough to damage the eye.

iQube Parts List

Scanner

- 1 x iQube 3D Scanner
- 1 x Scanner Cover
- 1 x AC Power Cable (regional)
- 1 x Network cable

Software

- 1 x Custom Orthotic Insoles installation CD
- 1 x Software Dongle

Documentation

- 1 x User Manual

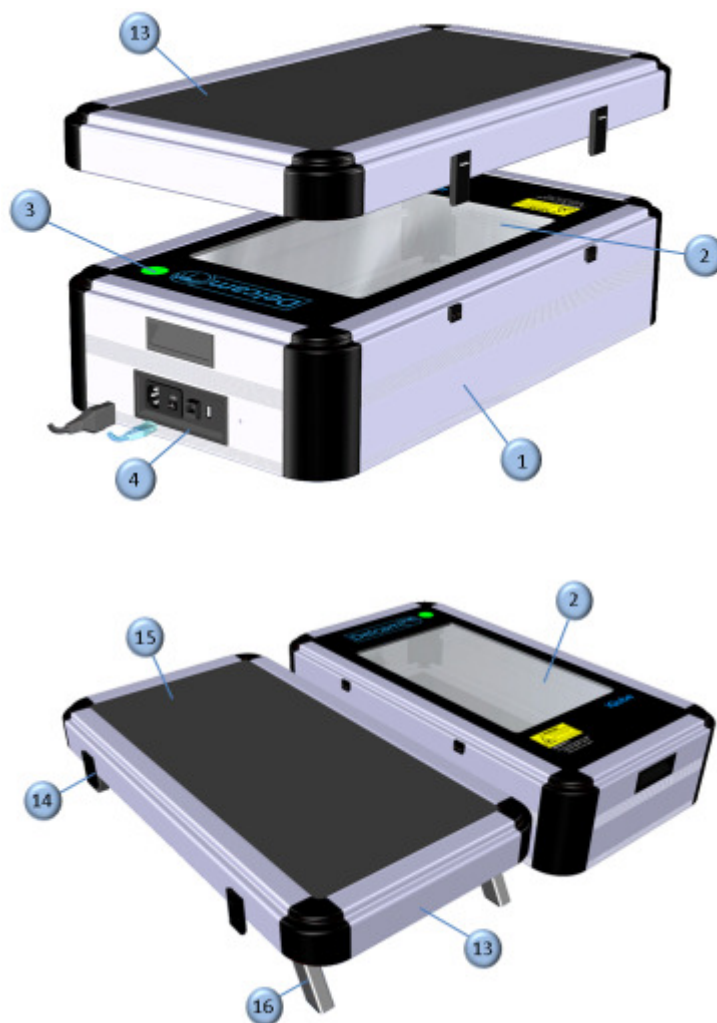
Foam Box Scan Aids

- 45mm Foam Box Lifters (x4)
- 40mm Lifter Extensions (x2)

Maintenance Kit

- Glass Cleaner Sachets

Hardware Diagrams





Hardware diagram - legend

The following items are shown on the hardware diagrams:

Main Unit

1. Scanner body
2. Tempered Glass Screen
3. iQube Scan Activation Switch
4. Electrical Panel
5. AC Power Cable Connection
6. Power Switch
7. LAN Cable Connection

8. USB 1 Connection (*DO NOT USE*)
9. USB 2 Connection (*DO NOT USE*)
10. Screen Release Entry
11. End Lifting Handles
12. Side Handle

Lid

13. Lid
14. Lid Clips (x4)
15. Standing Surface
16. Support Legs

Auxiliary Items

17. AC Power Cable (Regional)
18. Network Cable
19. Custom Orthotic Insoles
installation CD
20. Software Dongle
21. 45mm Foam Box Lifters (x5)
22. 40mm Lifter Extensions (x5)
23. Glass Cleaner Sachets + Duster

Setting up

The following sections give details on setting up for a scan:

Remove the Cover (see page 13)

Electrical Connection (see page 13)

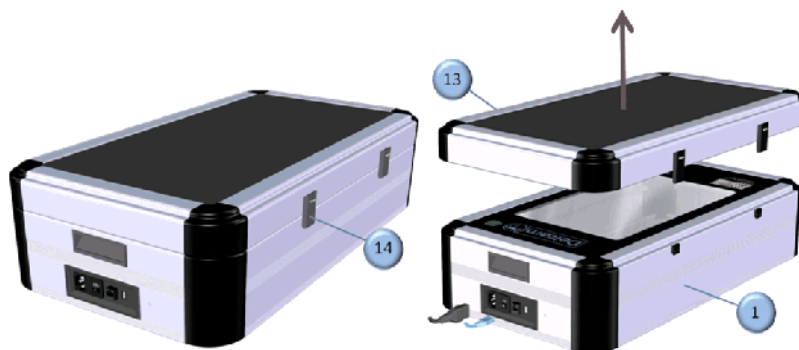
Network Connection (see page 15)

Power-up the Scanner (see page 15)

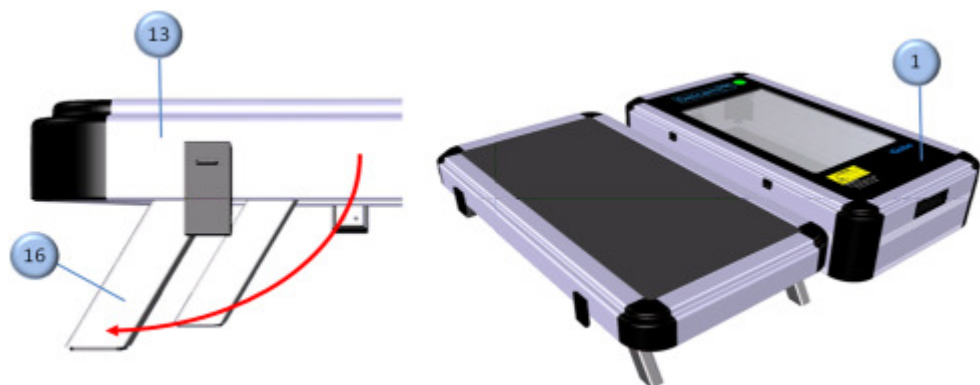
Connecting to the Scanner (see page 17)

Remove the Cover

1. Place the scanner onto a flat surface.
2. Unfasten the clips (14) from the scanner body (1) to release the lid (13).



3. Extend the support legs (16) and place adjacent to the scanner body (1).



Electrical Connection



CAUTION

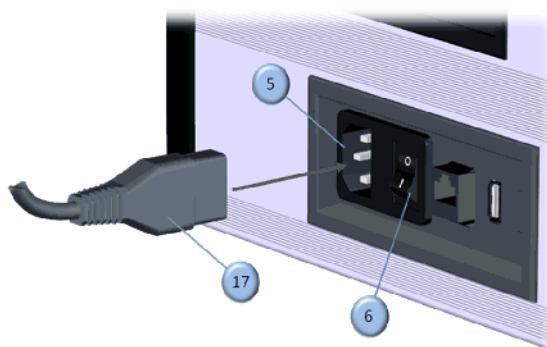
Always use the AC power cord supplied as a standard accessory with the scanner, and connect it to an AC outlet (100-240 V, 50/60 Hz). Failure to do so may damage the scanner, causing a fire or electric shock.

1. Set the Power Switch (6) on the end panel to OFF (“0”)



CAUTION

If the AC power cord is connected to an AC outlet with the power switch set to ON (“I”), damage to the scanner or computer may result. Before connecting the AC power cord, always make sure that the power switch is set to OFF.



2. Connect the AC Power Cable (17) to the scanner's AC power connector (5) located on the electrical panel (4).
3. Plug the other end of the AC power cable to an AC outlet.



CAUTION

Be sure to connect the AC power cord's plug to an AC outlet that has a grounding terminal.

Make sure that the AC outlet is located near the scanner and that the scanner's AC power cord's plug can be easily connected and disconnected.

Do not bend, twist or pull the AC power cord excessively. Do not place heavy items on it, scratch or modify it. Doing so may damage it, resulting in fire or electric shock.

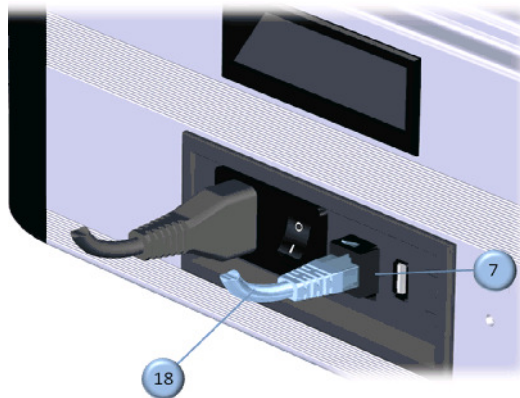
If you are not going to use the scanner for a long time, disconnect the AC power cord from the AC outlet. If dirt or water accumulates on the prongs of the AC power cord's plug, it may cause a fire. If there is any dirt or water on the prongs, it must be removed.

When disconnecting the AC power cord's plug, always hold the plug and pull it to remove it. Never pull the AC power cord itself as it may be damaged, resulting in fire or electric shock. Also do not insert or disconnect the AC power cord's plug with wet hands. Doing so may cause electric shock.

Network Connection

In order to drive the scanner from your PC it must be connected to the scanner using a network cable.

1. Plug one end of the network cable (18) into the network port of the scanner (7)

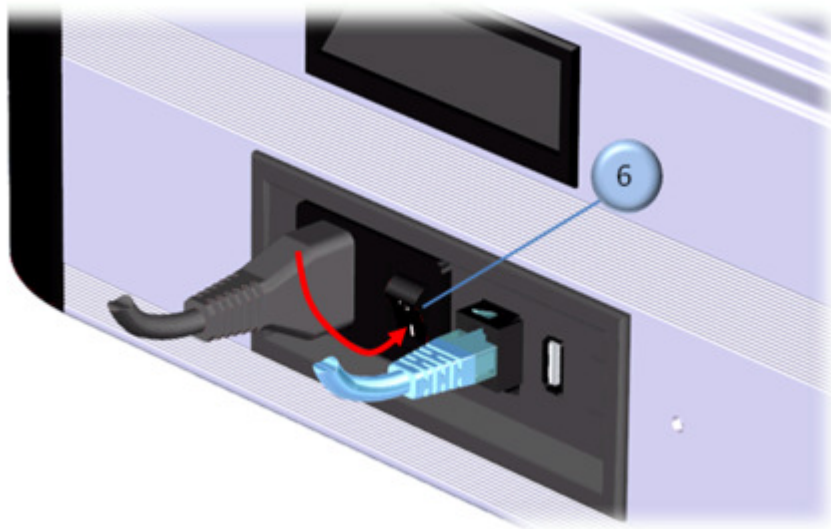


2. Plug the other end of the network cable into your network hub or the network port on your computer.



Power-up the Scanner

Set the scanner Power Switch (6) to ON (|).



The iQube logo located on the tempered glass screen (2) will glow blue.



After approximately 1 minute the scanner will produce a test movement. Following this, the iQube scan activation switch (3) will change from red to glowing green.



CAUTION

When turning the power ON again after it has just been turned OFF wait at least 10 seconds before doing so. Failure to observe this may result in malfunction or breakdown of the scanner.

Connecting to the Scanner

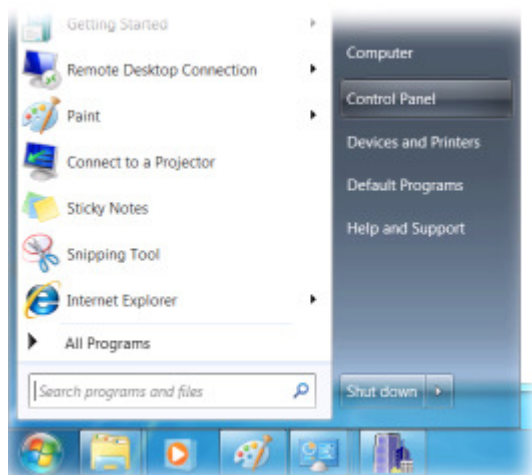
To operate the scanner from your PC the network connection between the two must be configured. For the two devices to communicate, the IP address of your PC must be set within the same domain as that of the scanner.

1. Log into your own PC or the PC provided with the scanner

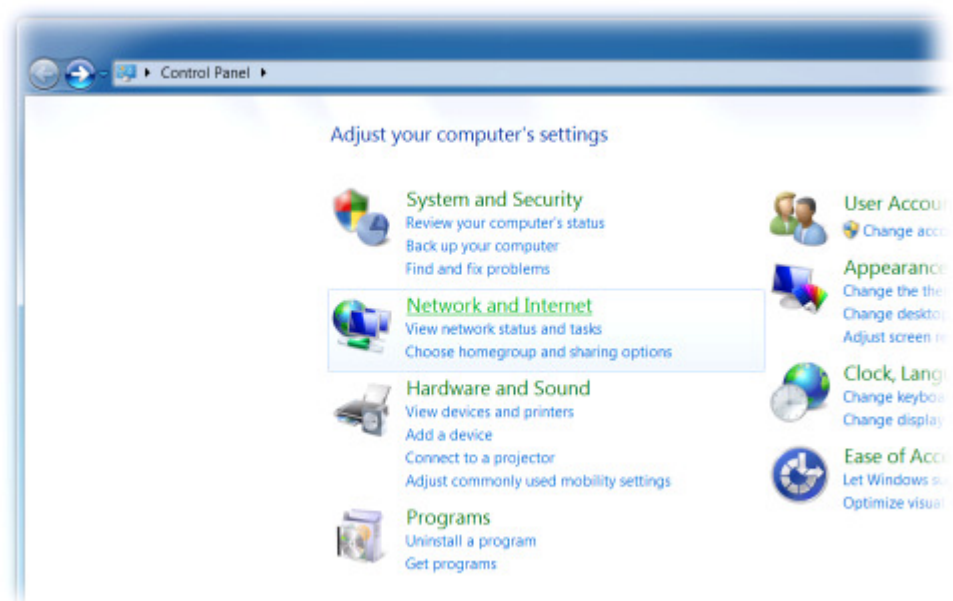


Please ensure you have system permissions to install software.

2. From the windows menu select **Control Panel**.



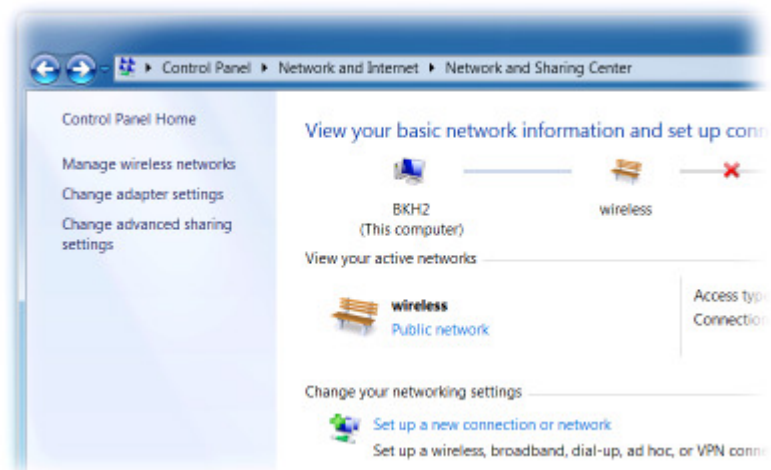
3. Select **Network and Internet**.



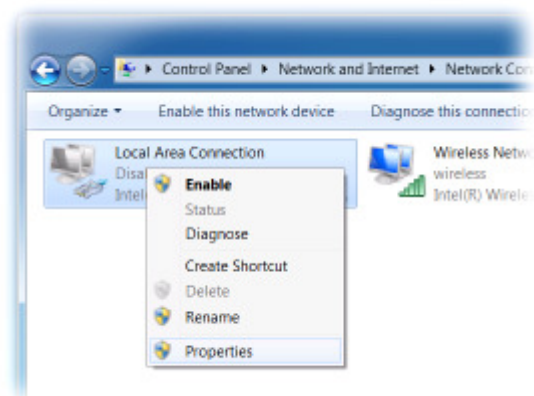
4. Select **Network & Sharing Center**.



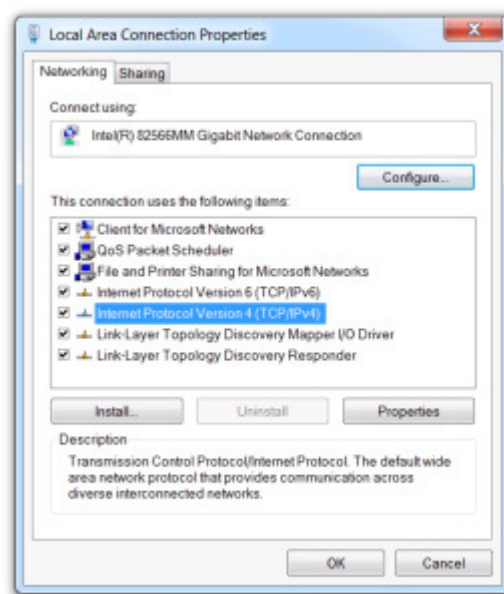
5. Select **Change Adapter Settings**.



6. Using the right mouse button, select **Local Area Connection**.



7. Select **Properties**.
8. Select the **Internet protocol Version 4 (TCP/IPv4)** and click **Properties**.



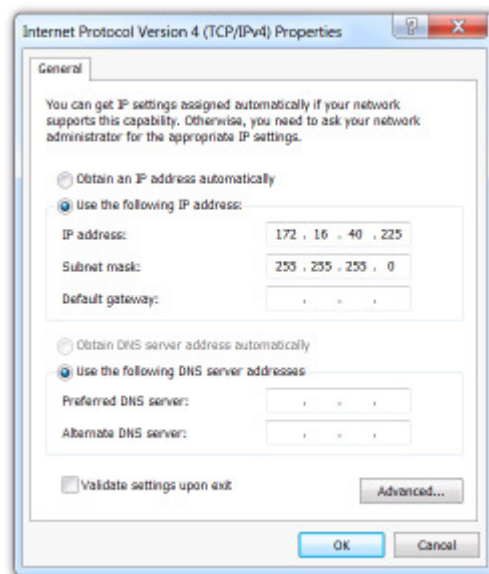
9. Ensure **Use the following IP address** is selected.

10. Enter the IP address.

Use a unique value starting with **172.16.40** where the last three numbers:

- are not 222 (the scanner IP address is 172.16.40.222)
- are not any other numbers equivalent to other PC on your network. For example, set the PC to 172.16.40.225

11. Set the **Subnet mask** to **255.255.255.0**

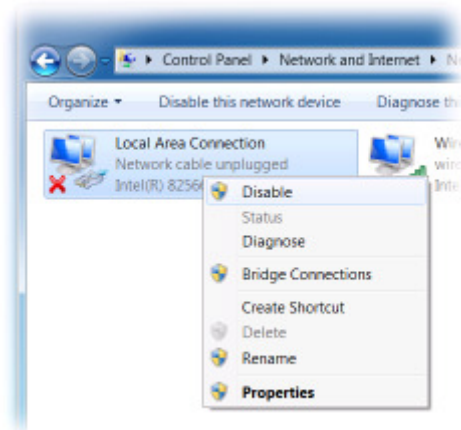


12. Click **OK**.

13. Close the **Local Area Connection Properties** dialog.

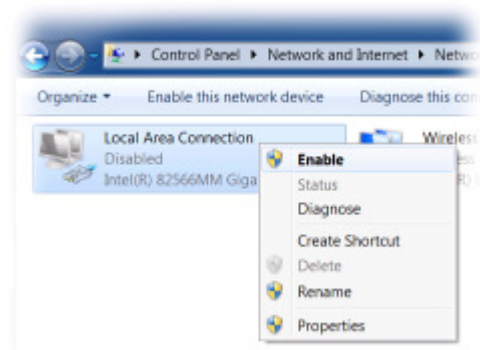
14. Use the right mouse button to select **Local Area Connection**.

15. Select **Disable**.



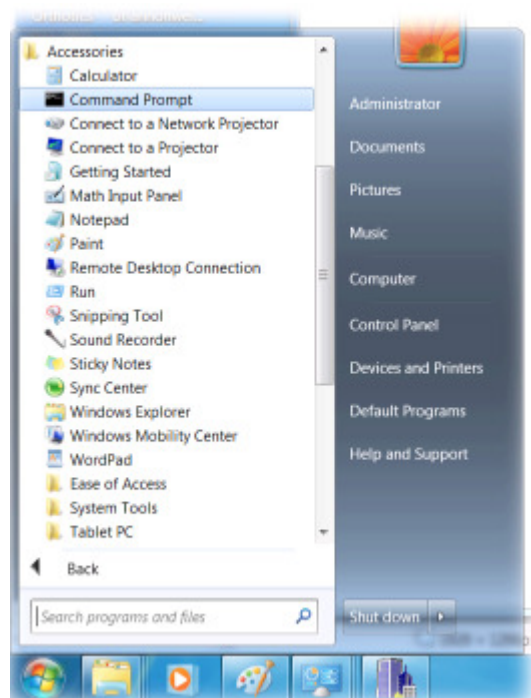
16. Use the right mouse button to select **Local Area Connection**.

17. Select **Enable**.

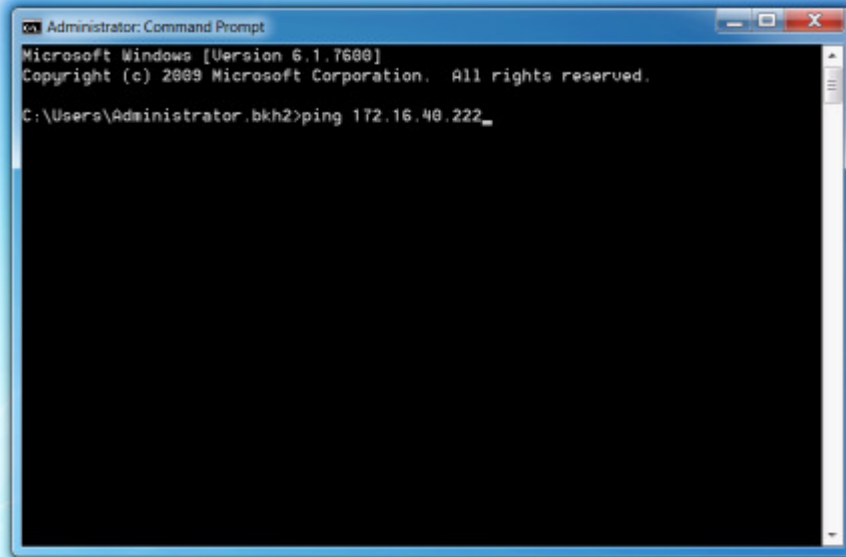


Test the Connection

1. From the **Start** menu select **All Programs > Accessories > Command Prompt**



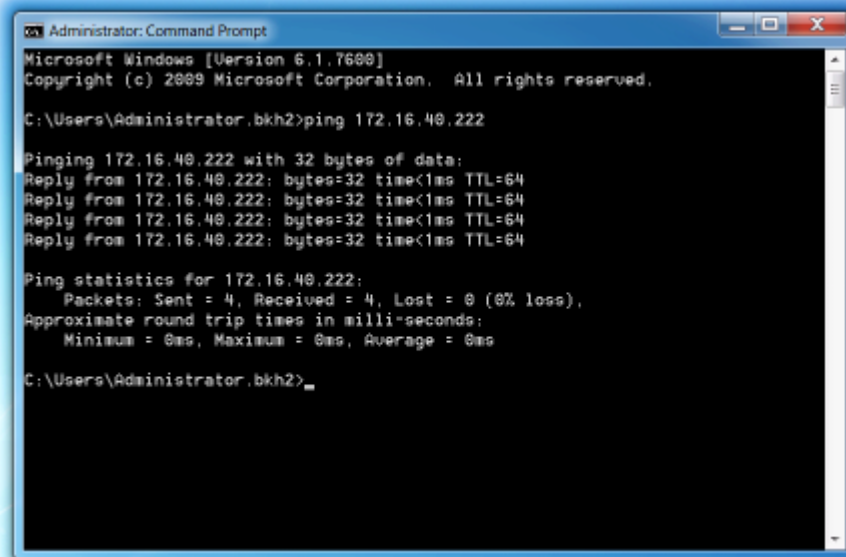
2. In the command window type `ping 172.16.40.222` and press **Enter**.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator.bkh2>ping 172.16.40.222_
```

The following message should be displayed, denoting that the PC and scanner are talking to each other.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator.bkh2>ping 172.16.40.222

Pinging 172.16.40.222 with 32 bytes of data:
Reply from 172.16.40.222: bytes=32 time<1ms TTL=64
Reply from 172.16.40.222: bytes=32 time<1ms TTL=64
Reply from 172.16.40.222: bytes=32 time<1ms TTL=64
Reply from 172.16.40.222: bytes=32 time<1ms TTL=64

Ping statistics for 172.16.40.222:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator.bkh2>_
```

You are now ready to install the **Delcam Orthotic Insoles Software**.

Software Installation

Use the following sections to guide you through the installation and testing process:

- System Requirements (see page 23)
- Installation (see page 23)
- Test (see page 24)

System Requirements

To use the scanner your computer must have a minimum specification as follows:

- Dual Processor - 2.2GHz
- 2GB Dual Channel Memory
- 160GB Hard Drive
- Ethernet Network Adapter
- Windows ® 7
- 512 MB NVIDIA® GeForce™ 9600M GS Graphic Card
- DVD Drive



We do not recommend any Intel integrated graphics or ATI cards.

Installation

If you purchased a PC with the scanner, the software should already be installed and ready to use (see **Using the Delcam Orthotic Insoles software** (see page 26).)

Please see System Requirements (see page 23) for minimum hardware specification.

To install the software

1. Log into your own PC or the PC provided with the scanner

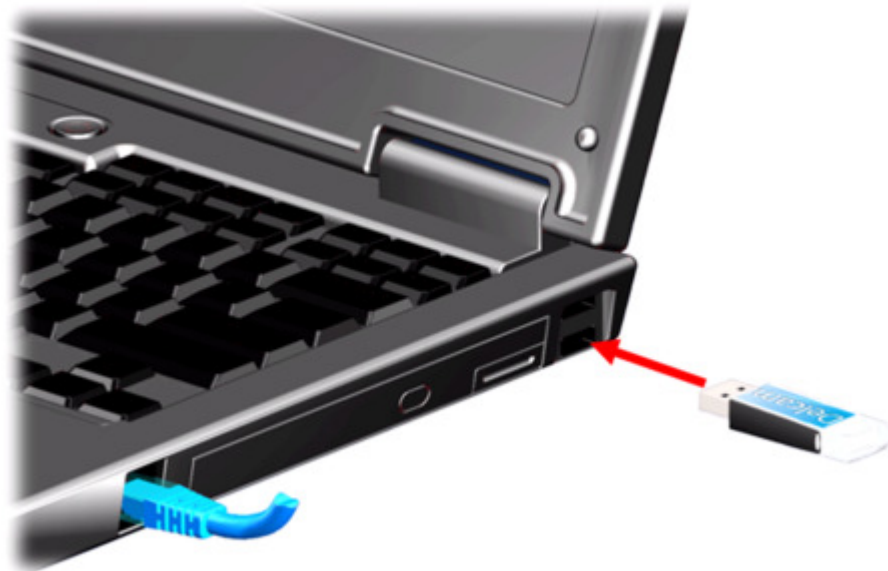


Please ensure you have system permissions to install software

2. Insert the Custom Orthotic Insoles software installation CD (19) into the computer CD ROM drive and close.
3. Follow the steps on the installation wizard

Before you are able to run the software you must insert the software dongle and copy the software authorization file (obtained from your Sales partner) to the required location.

4. Insert the software dongle into a USB socket on your PC



5. Copy the software authorization file to the following location:
C:\Program Files\Common Files\Delcam
6. Restart the PC and login.

Test

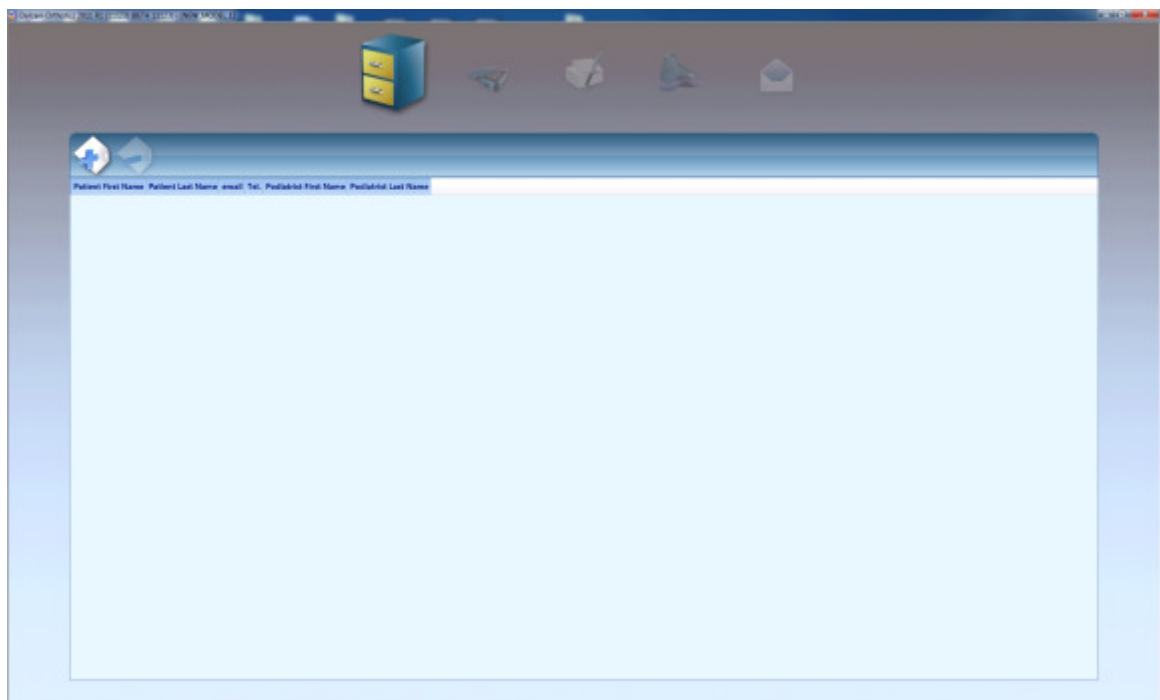


This section assumes that the software dongle is connected and the product authorization file has been copied to the correct location

1. Double click on the Delcam Orthotic Insoles icon on your desktop.



By default the software will display the Jobs Page. When the software is used for the first time, there are no jobs to display, so the the screen will appear as follows:



Using the Delcam Orthotic Insoles Software

This section provides detailed information regarding the operation of the software. To get the best results from scanning a foot, foam box or cast please see the relevant sections within the ‘Scanning’ chapter.

1. Double click on the Delcam Orthotic Insoles icon located on your desktop.



2. Use the following sections for information on using the software:
Jobs Page (see page 27)
Scan Page (see page 29)
Export Page (see page 41)
Scanning Procedures (see page 44)

Jobs Page

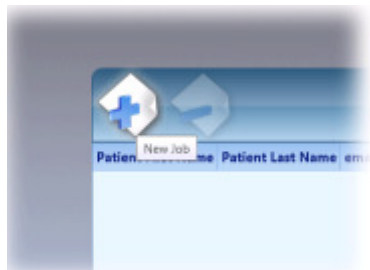
To scan a patient's foot, foam box or cast, a job must be created with the required information. Use the following sections for information on using the **Jobs** page:

Adding a Job (see page 27)

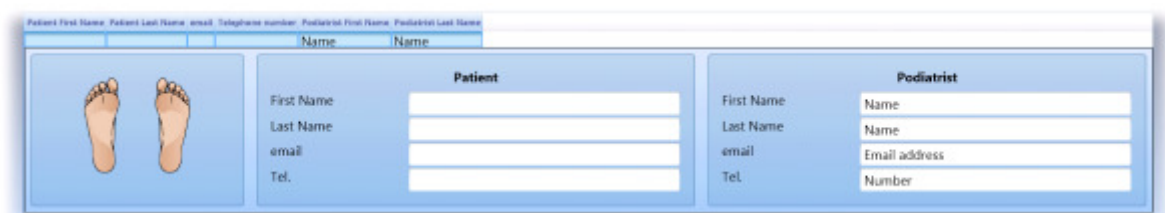
Deleting a Job (see page 28)

Adding a Job

1. Click the New Job icon



The Patient/Podiatrist dialog is displayed:



2. Add the following details:

- First Name
- Last name

- Email
- Telephone Number

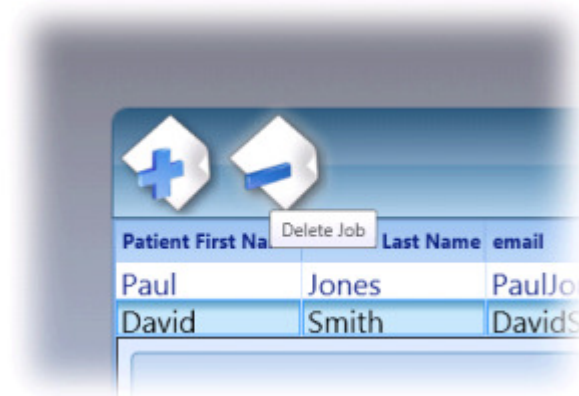
These details will be added to the Job line and the job information is automatically stored.

Patient		Podiatrist	
First Name	Paul	First Name	Mike
Last Name	Jones	Last Name	Peters
email	PaulJones@hotmail.com	email	MikePeters@DelcamClinic.com
Tel.	014286197621	Tel.	08917256121

These details will be added to the Job line and the job information is automatically stored.

Deleting a Job

1. Select the job you wish to delete.
2. Click Delete Job button.



The job and its associated scan files will be deleted from the software.



Once deleted a job cannot be retrieved

Scan Page

1. Ensure that the details of the job have been added (see page 27).
2. Click the **iQube scan** button at the top of the screen.



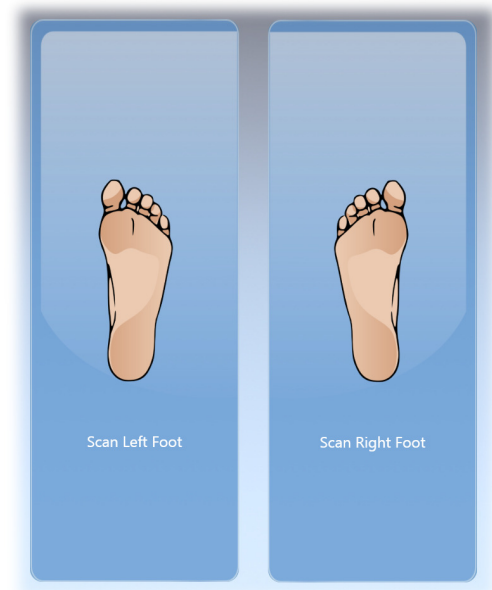
The following Scan Page is displayed:

3. Place the patient's foot, foam box impression or cast onto the scanner surface.



4. Select one of the three Scan Model buttons (see page 31).

5. Select one of the three Scan Mode buttons (see page 38).
6. Click Scan Left Foot or Scan Right Foot panels as appropriate.



7. Depending upon the selected scan mode the following will happen:
 - Take Scan Immediately: A scan will be immediately performed, followed by processing and retrieval into the software.
 - Retrieve scan stored on scanner: A previous scan taken using the iQube scan activation switch will be retrieved into the software.



The iQube scan activation switch will glow red while the scan and subsequent processing is being performed. Do not attempt to perform any other software operations during this period.

The time taken to retrieve the scan depend on:

- The size of the item being scanned.
 - Foam Box = larger surface area = longer time
 - Foot = smaller surface area = shorter time
- Whether you are using **Fast** or **HD**:. (see page 32)
 - Fast = 3 Data Cameras = shorter time
 - HD = 5 Data Cameras = longer time



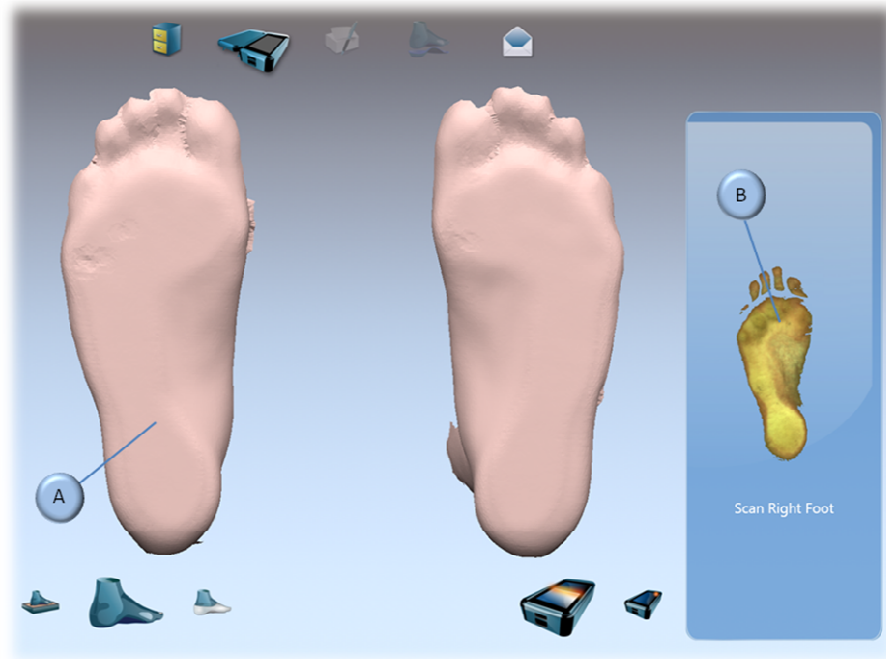
By default a five camera system (E500) will use only 3 cameras when using the 'Foot Scanning' mode. To change to 5 cameras see section 'Changing Default Scan Settings'

- The level of detail (see page 32):

Medium = shorter time

High = longer time

In all cases the meshed, shaded scan (A) will show on the screen along with the 2D photographic image (B) presented within the relevant panel.



8. If required, repeat steps 2 - 7 to scan the other foot.

Both scans will be loaded into the Scan Page with their matching 2D images also displayed in the corresponding panels.

9. Export the data (see page 41).

Scan Model

The three Scan Model buttons scan different model types.

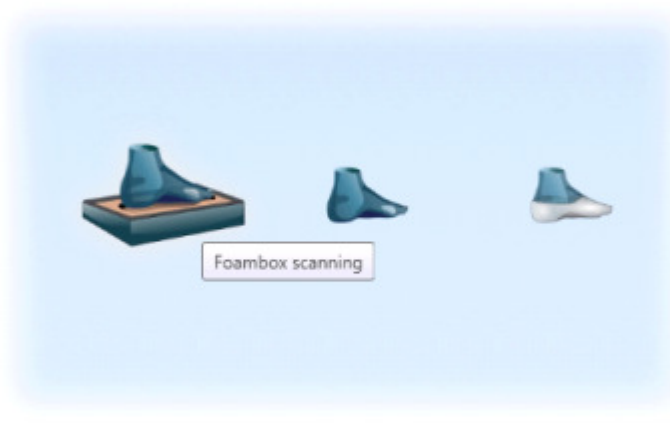
Model 1: Foot

This should only be used for scanning a positive foot shape.



Model 2: Foam Box

This should only be used for scanning a foam box.



Model 3: Cast

This should only be used for scanning a cast.



Scan Settings

For each Scan Model the scan settings can be set independently.

The scan settings affect the data:

- Noise
- Completeness
- Level of detail

Depending upon the model colour, quality and required detail the Colour and Detail settings can be modified for each type of Scan Model.

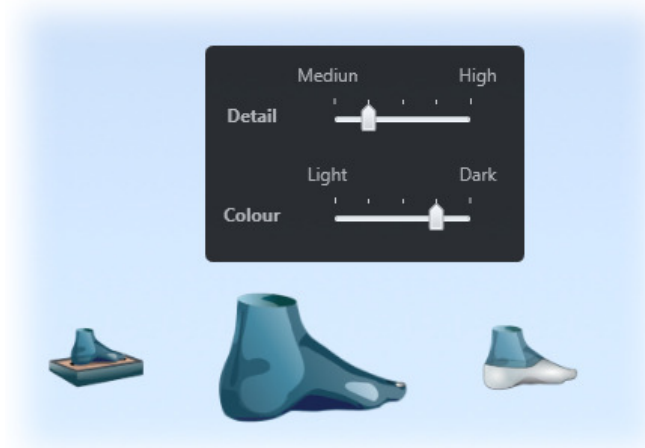
Default settings for all the Scan Models are:

- Foot (Caucasian)
Colour – 2nd Darkest
Detail - Medium-High
- Foam Box (Red Foam)
Colour - 2nd Lightest
Detail - Medium
- Cast (White Plaster)
Colour - Light
Detail - Medium

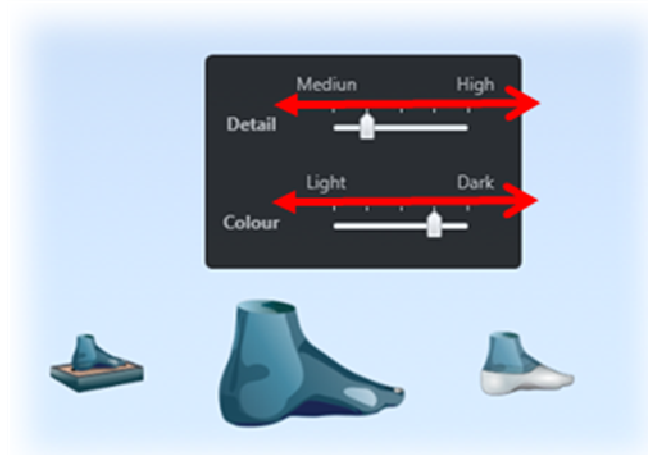
These settings are based upon prior tests but may need to be modified.

Changing the scan settings (per session)

1. Use the right mouse button to select one of the Scan Mode buttons and display the following form:



2. Modify the parameters by moving the relevant slider to the left or right.



*The above settings are only stored for the current session, To set them for future sessions please see section **Changing the Default Scan Settings***

Changing the Default Scan Settings

To change the settings so that each OrthoMAN session uses a revised set of values as default the user will need to edit a system text file

1. Open the following file into a text editor:

: [install drive]

/Delcam/PowerSHAPE*****/file/orthotics/orthotics_scanner.con



Close OrthoMAN before making and changes

Changing to High definition Foot capture mode

If the scanner is an E500 model (5 cameras) then it would be advisable that the foot capture mode is changed from **Fast** to **High Definition**

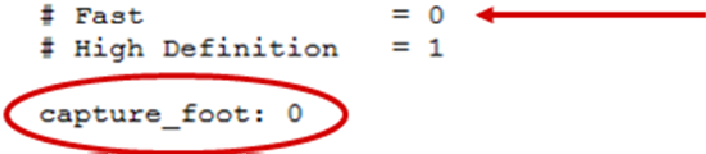
This mode can help with capturing more data around the heel region of the foot



This can only be used with the E500 (5Camera) system

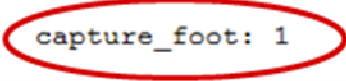
By default the foot capture mode is set to 0 which uses three cameras to capture the foot definition. (see below)


```
# capture_foot
# (note that High Definition capture is only available with
iQube-HD scanners)
# Fast          = 0
# High Definition = 1
capture_foot: 0
```



2. Edit the text *capture_foot: 0* to *capture_foot: 1*

```
# capture_foot
# (note that High Definition capture is only available with
iQube-HD scanners)
# Fast          = 0
# High Definition = 1
capture_foot: 1
```



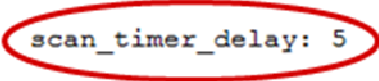
3. If this is the only option requiring a change then save the text file and re-start OrthoMAN.

Changing the default Timer delay

The current default delay is 5secs but can be edited to a user defined value.

4. Edit the value below:

```
# scan_timer_delay
# delay (in seconds) before starting scan with scan_mode =
ortSSM_TIMER
scan_timer_delay: 5
```



5. If this is the only option requiring a change then save the text file and re-start OrthoMAN.

Changing the default Scan item (model)

The current default scan model is set to 0 (Foot) but can also be set to 1 (Cast) and 2 (Foam Box).

```
# scan_item
# (default item to scan)
# Foot      (ortSSO_FOOT)      = 0
# Cast      (ortSSO_CAST)      = 1
# Foam box   (ortSSO_FOAM)      = 2
```

```
scan_item: 0
```

Changing the Sensitivity & Resolution

OrthoMAN has been setup with the optimum settings for scanning feet, foam boxes and casts. However the scan results are dependent upon the following factors and the default settings may need to be adjusted accordingly.

- Lighting conditions (artificial lighting)
- Colour of item being scanned
- Level of detail required.

Sensitivity

- If the material is darker then you may need to increase the sensitivity.
- If the results are being affected by artificial lighting then you should either move the scanner to another location, turn off the artificial lighting or reduce the sensitivity settings.
- More data will be captured if the sensitivity is increased (the internal cameras are 'open' for longer)
- There is a greater risk of capturing 'noisy' data if the sensitivity is increased. This will in turn slow the time taken to process the mesh.

With an allowed range of very_low to very_high the default sensitivity values are:

- *Foot: High*
- *Foam: Low*
- *Cast: Very_Low*

These settings can be adjusted to either:

- *Very_Low*
- *Low*
- *Normal*
- *High*
- *Very_High*

6. Edit the required sensitivity settings:

```
# sensitivity (colour)
# (default scan sensitivities for foot, foambox and cast
scans)|
# (these are presented as 'Colour' in the user interface)
# Very low (Colour = Light)   = very_low
# Low                        = low
# Normal                     = normal
# High                       = high
# Very high (Colour = Dark)  = very_high
```

```
sensitivity_foot: high
sensitivity_foam: low
sensitivity_cast: very_low
```

Resolution

- If you increase the 'Detail' (by entering a smaller filter value) you are filtering out less points and more detail will be maintained.
- If you increase the 'Detail' you may actually introduce model mesh features that do not lend themselves to the creation of a smooth orthotic
- If you increase the detail the time taken to process the mesh will increase

With an allowed range of 0.5 to 1.5 the default sensitivity values are:

- *Foot: 1.2*
- *Foam: 1.5*
- *Cast: 1.5*

These settings can be adjusted to any value between 0.5 and 1.5mm



If you decrease the value ie. 0.5 – you are actually increasing the detail because less points are being filtered out.

```
# resolution (detail)
# (default scan resolution for foot, foambox and cast scans)
# (these are presented as 'Detail' in the user interface)
# Allowed range = 0.5mm -> 1.5mm
resolution_foot: 1.25
resolution_foam: 1.5
resolution_cast: 1.5
```

7. Edit the required resolution values:
8. Save the text file and re-start OrthoMAN.

Scan Mode

There are three Scan Mode buttons.

Mode 1 - Take scan immediately



Use this button to start an immediate scan.

Mode 2: Retrieve scan stored on the scanner

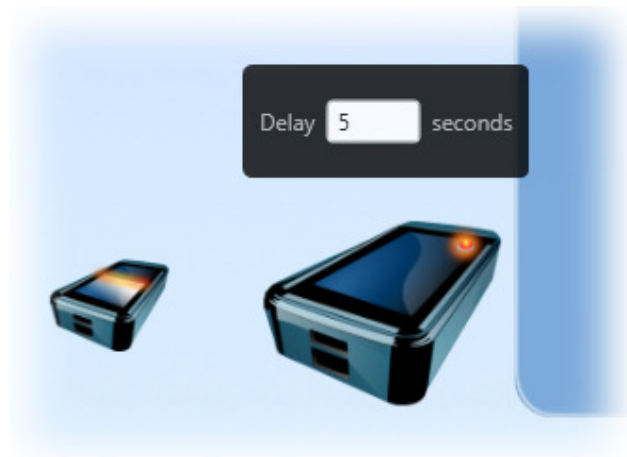


This mode is useful in two events:

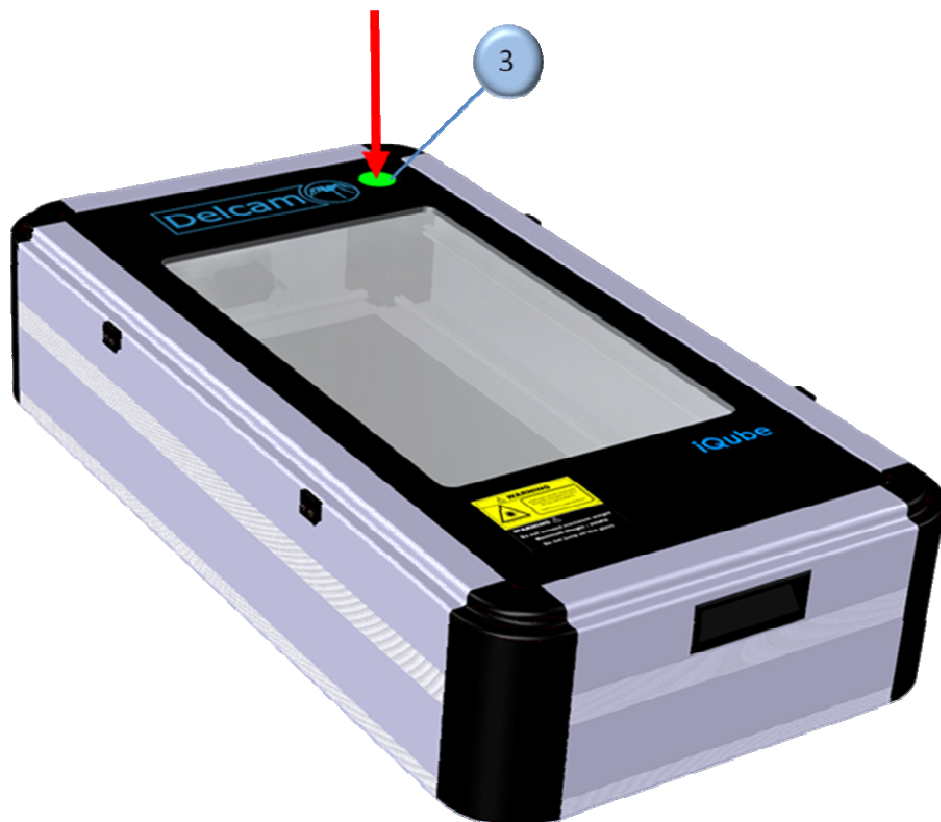
- When you need to action a scan without the use of a connected PC. For instance within a large laboratory there may be many PC's networked to one iQube scanner. Any individual can use the scan activation switch then go back to their PC (or any other running OrthoMAN) and retrieve the data back into OrthoMAN.
- When a practitioner may need to manipulate a patient's foot and cannot get access to the connected PC to start the scan. In combination with a timer delay (see below) the practitioner can activate the iQube scan activation switch and still have time to orientate the foot prior to a scan commencing.

Before using the iQube scan activation switch a timer delay may be required.

1. Select the mode with the right mouse button
2. Enter a value into text box



3. Hold your hand over the switch to activate the scan.



Once the switch has been triggered it should glow red and the delay will commence.

4. Once the scan is complete return to the PC running OrthoMAN
5. Click on either the either of the below buttons to retrieve the scan.



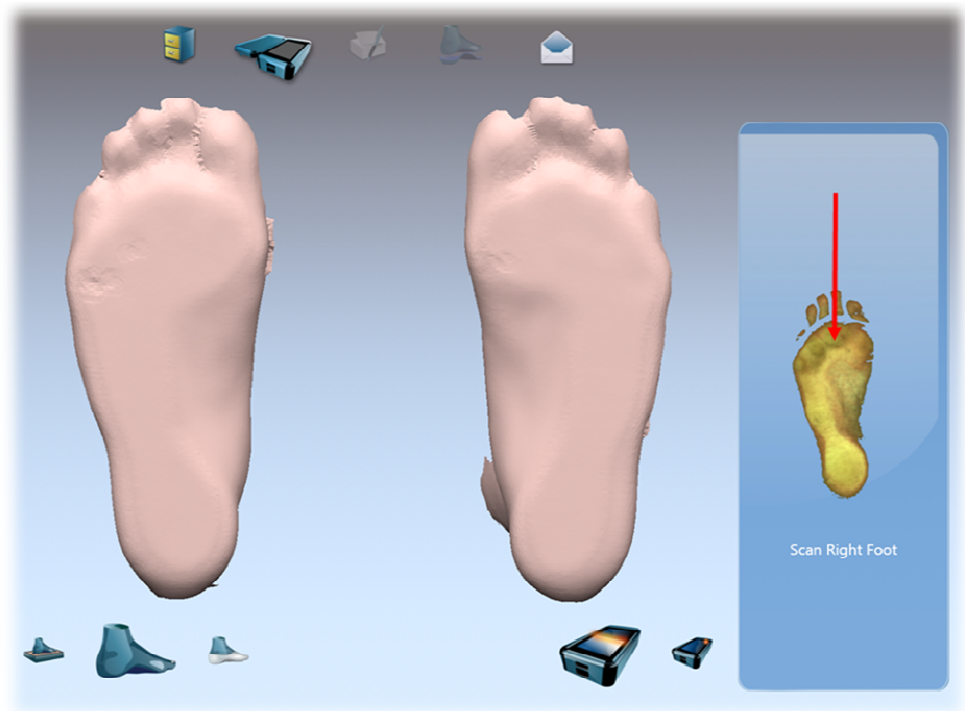
After a short period the data should now appear within OrthoMAN.

Export Page

To start orthotic insole modelling the data must be exported.
Both the mesh and associated image are exported together.

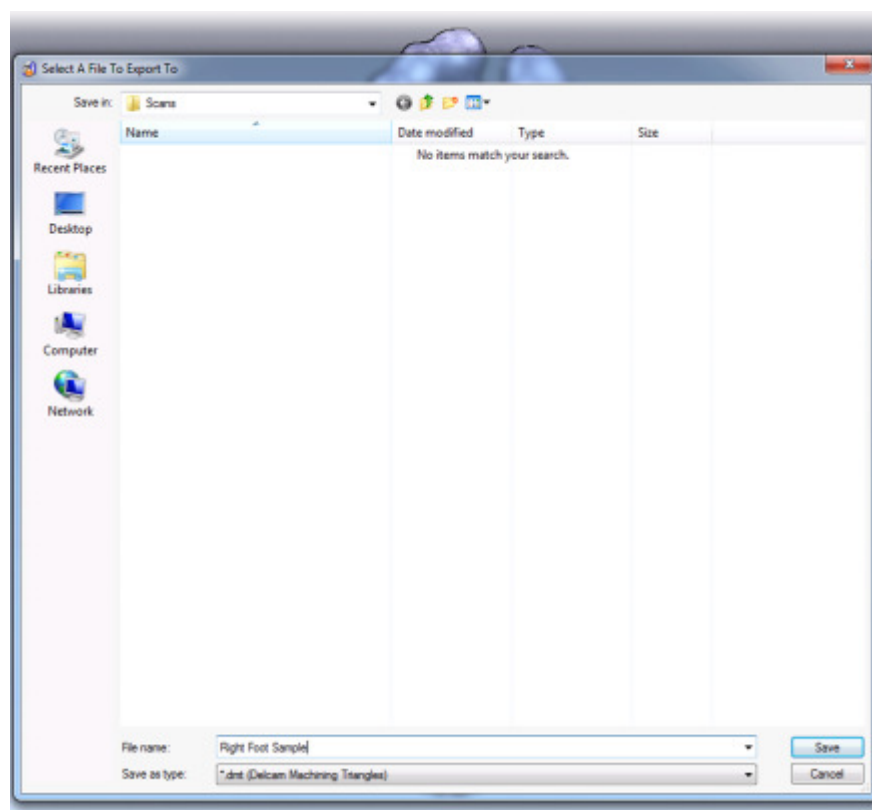


1. Click on the **Export** button to display the following:



2. Click on the panel to export.

The **Select a File To Export To** dialog is displayed.



3. Navigate to the required location.

4. Enter the filename.

5. Click **Save**.

The mesh file will now be saved as <filename>].dmt in the selected location.

The image file will now be saved as <filename>].bmp in the selected location.



The scan files can only be saved as Delcam Machining Triangles (.dmt)*

6. If required, repeat steps 2 - 5 to save the data for the other foot.

Scanning Procedures

This section provides detailed information on the preparation, scan techniques and optimal settings for scanning the positive form of the foot, a foam box impression or cast.

Scanning a Foot (see page 44)

Scanner Setup (Foot) (see page 45)

Orientation & Location (Foot) (see page 47)

Scan Settings (Foot) (see page 47)

Scanning a Foam Box Impression (see page 48)

Scanner Setup (Foam Box Impression) (see page 49)

Orientation & Location (Foam Box Impression) (see page 51)

Scan Settings (Foam Box Impression) (see page 52)

Scanning a Cast (see page 53)

Scanner Setup (Cast) (see page 53)

Orientation and Location (Cast) (see page 53)

Scan Settings (Cast) (see page 54)

Scanning a Foot

The following sections give details on scanning a foot:

Scanner Setup (Foot) (see page 45)

Orientation & Location (Foot) (see page 47)

Scan Settings (Foot) (see page 47)



For Best Results:

Switch the scanner on for at least 5 minutes before use.
Ensure the top face of the scanner is smudge and dust free
Ensure the patient's foot is clean and dry

Scanner Setup (Foot)

Weight On

Extend the support legs (16) and place the lid (13) adjacent to the scanner. This will enable the patient to place one foot on the lid and one on the tempered glass screen (2) of the scanner body (1).



Do not exceed maximum weight of glass

Maximum Weight: 200KG

Do not jump on the glass

Semi-Weight Bearing

1. Extend one end of the support legs (16) whilst the other, closed end is placed onto the floor surface.
2. Take the scanner body (1) and place onto the lid ensuring the iQube logo is towards the bottom.



Weight Off

1. Extend the support legs (16) and place the lid (13) perpendicular to the scan orientation.
2. Lift the scanner body (1) and place vertically onto the lid (13) ensuring the iQube logo is toward the bottom.



Orientation & Location (Foot)

1. Ensure that the foot is orientated with the heel at the iQube logo end of the scanner with its axis parallel to the scanner body side.
2. Locate the foot centrally over the glass aperture.
3. If required manipulate the foot into position prior to the scan. Any unwanted data can be discarded at a later point but ensure that you do not cover any part of the plantar surface during the scan.

In the case of a weight off scan the plantar surface of the foot must be within 50mm of the scanner surface.

4. Depending upon the data quality it may be necessary to move the foot laterally across the glass so the medial edge is closer to the edge of the glass aperture.



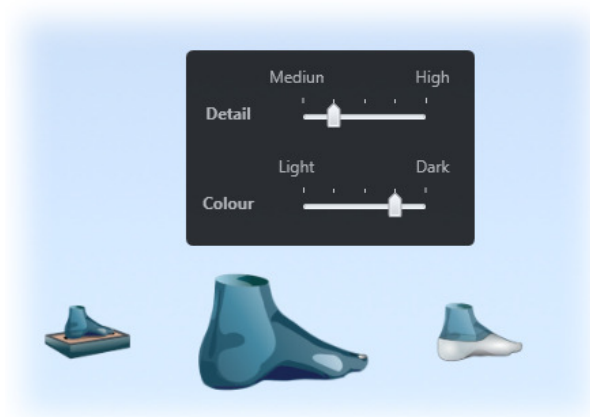
Scan Settings (Foot)

Depending upon the colour of the patient's foot and the amount of detail required it may be necessary to adjust the **Colour** and **Detail**.

Default settings are:

- **Colour** – 2nd Darkest

- **Detail - Medium-High**



The above settings are ideal for a typical Caucasian foot.

- *If you are experiencing missing/sparse data try a darker colour setting.*
- *If you experiencing large amounts of noise try a lighter colour setting*
- *If you need more detail in the data then try a higher detail setting (this will increase the data processing time)*

To change the scan settings and/or action the scan of a foot see Using the Delcam Orthotic Insoles Software. (see page 26)

Scanning a Foam Box Impression

This can only be performed with the five camera system(E500)

The following sections give details on scanning a **Foam Box Impression**:

Scanner Setup (Foam Box Impression) (see page 49)

Orientation & Location (Foam Box Impression) (see page 51)

Scan Settings (Foam Box Impression) (see page 52)



For Best Results:

Switch the scanner on for at least 5 minutes before use.

Ensure the top face of the scanner is smudge free

Blow any excess dust from the foam box before inverting the foam box for scanning (reduces dust deposited onto scanner glass)

Initially always use two 45mm lifters (21) to lift the heel end of the foam box. The lifters enable the angled lasers and cameras to see more of the negative impression.

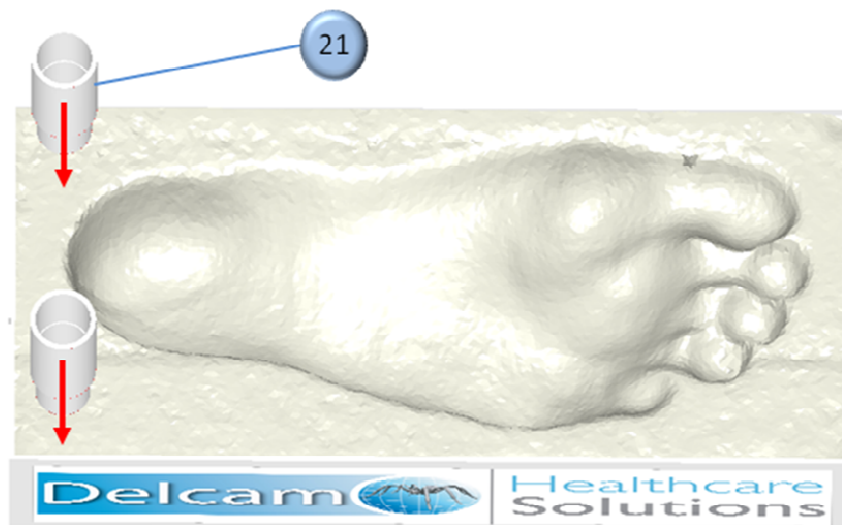
For deeper foam boxes increase their height by adding the extensions (22) to the current lifters at the heel end. At the toe end of the impression add two 45mm lifters (21).

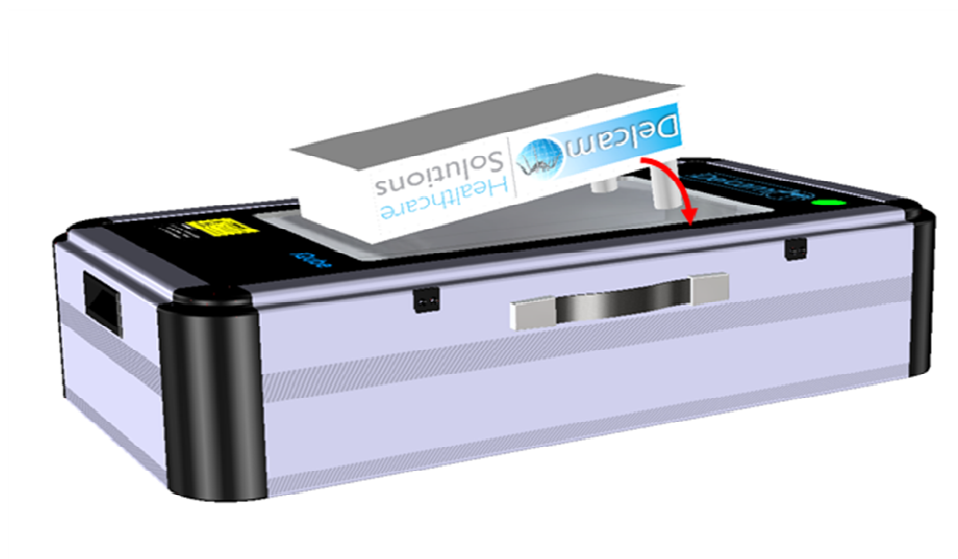
Scanner Setup (Foam Box Impression)

Place scanner body on a flat surface (lid is not required)

It is suggested that for all foam boxes (40 or 55mm depth) initially use two 45mm lifters (21) at the heel end to raise the heel end of the foam box.

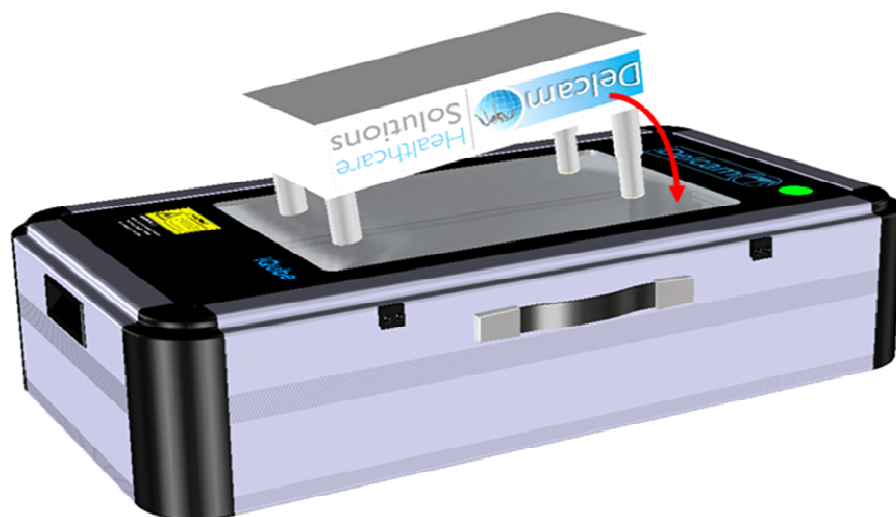
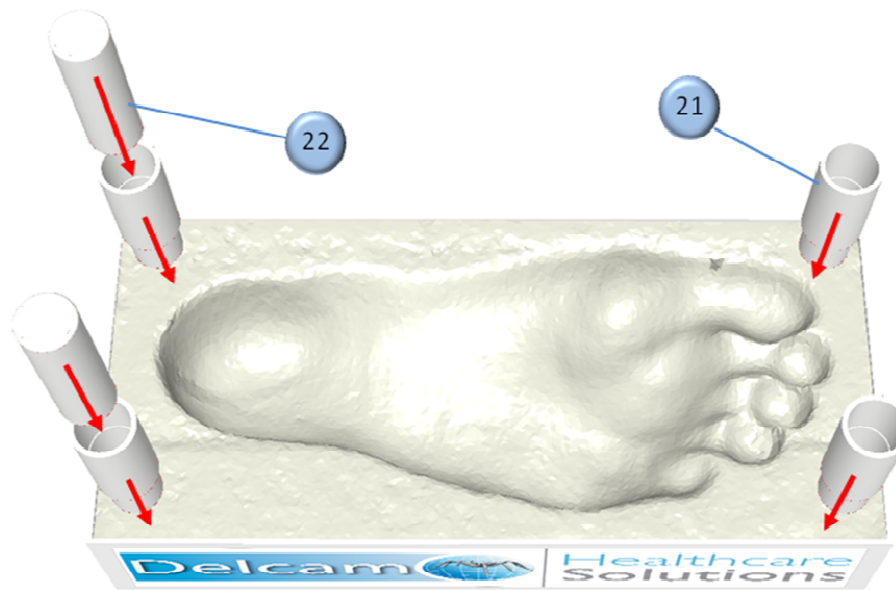
With 45mm lifters:





With the 45mm Lifters + 40mm Extensions

Use 21 + 22 as shown below:



Orientation & Location (Foam Box Impression)

1. Ensure that the impression is orientated with the toes at the iQube logo end of the scanner with its axis parallel to the scanner body side.



This is the opposite orientation to a foot

2. Locate the foam box centrally within the glass aperture.

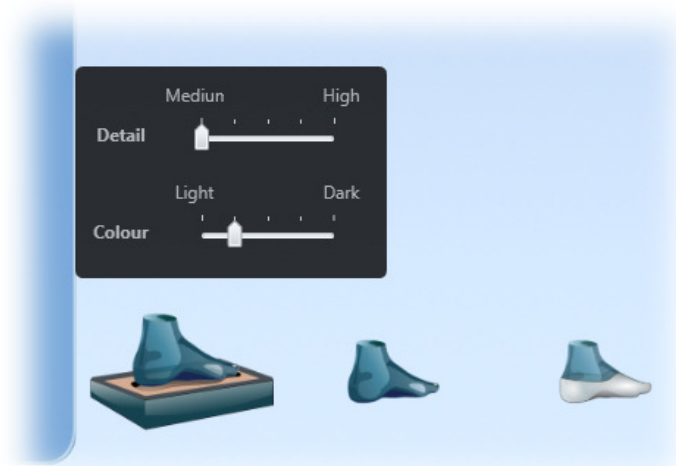


Scan Settings (Foam Box Impression)

Depending on the colour of the foam box and the amount of detail required it may be necessary to adjust the **Colour** and **Detail**.

Default settings are:

- **Colour** - 2nd Lightest
- **Detail** - Medium



The above settings are ideal for red coloured foam.



If you are experiencing missing/sparse data try a darker colour setting.

If you experiencing large amounts of noise try a lighter colour setting

If you need more detail in the data then try a higher detail setting (this will increase the data processing time)

To change the scan settings and/or action the scan of a foam box please see Using the Delcam Orthotic Insoles Software (see page 26).

Scanning a Cast

This can only be performed with the five camera system (E500).

The following sections give details on scanning a **Cast**:

Scanner Setup (Cast) (see page 53)

Orientation and Location (Cast) (see page 53)

Scan Settings (Cast) (see page 54)



For Best Results

Switch the scanner on for at least 5 minutes before use.

Ensure the top face of the scanner is smudge and dust free

Trim the cast down to the required horizon line or just above. This will enable the scanner to view inside the cast.

If required use a 45mm lifter (21) to raise the heel end of the cast. This will enable the lasers and cameras to see more of the inside of the cast.

Scanner Setup (Cast)

Place scanner body on a flat surface (lid is not required)

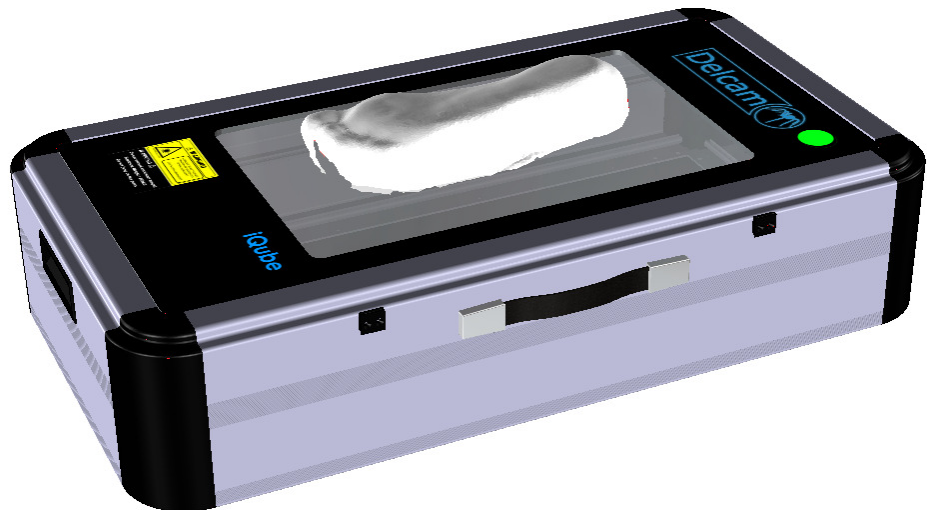
Orientation and Location (Cast)

1. Ensure that the cast is orientated with the toes at the iQube logo end of the scanner with its axis parallel to the scanner body side.

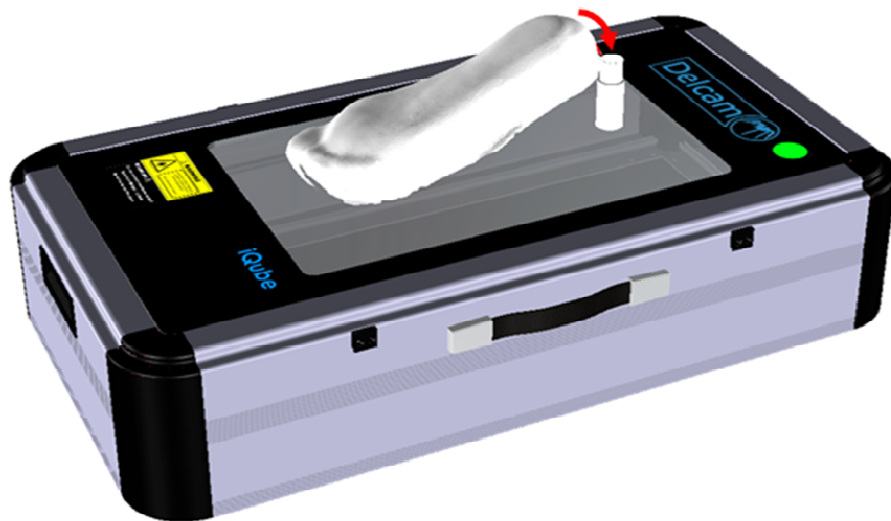


This is the opposite orientation to a foot

2. Locate the cast centrally within the glass aperture.



or



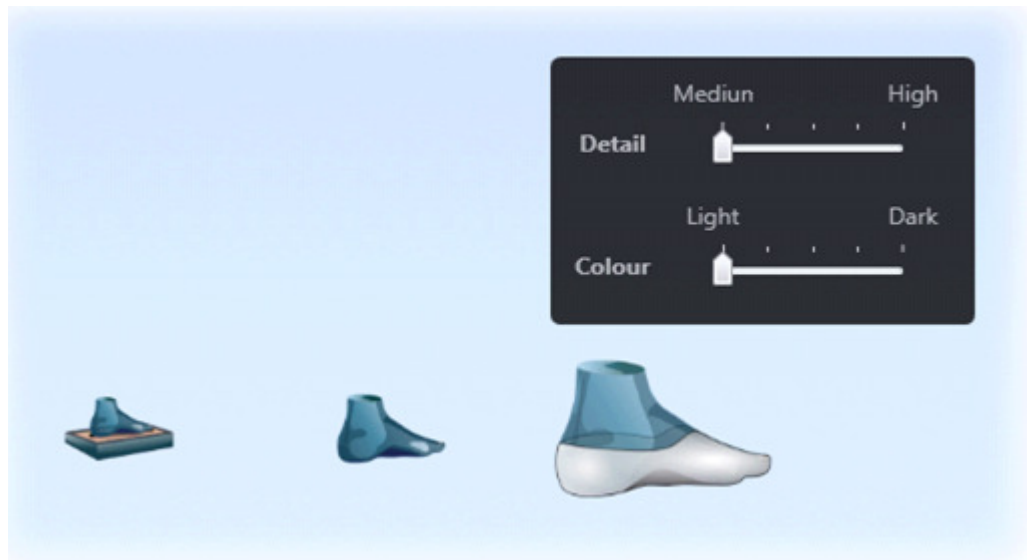
Scan Settings (Cast)

Depending on the colour of the cast and the amount of detail required it may be necessary to adjust the **Colour** and **Detail**.

Default settings are:

- **Colour** - Light

- **Detail - Medium**



The above settings are ideal for a white cast.



If you are experiencing missing/sparse data try a darker colour setting.

If you experiencing large amounts of noise try a lighter colour setting

If you need more detail in the data then try a higher detail setting (this will increase the data processing time)

To change the scan settings and/or action the scan of a cast see Using the Delcam Orthotic Insoles Software (see page 26).

Maintenance and Handling

Correct maintenance and handling of the iQube scanner will insure its longevity and accurate performance. For details see:

Maintenance (see page 56)

Handling (see page 56)

Maintenance

To ensure the scanner produces the best results the glass should be routinely cleaned using the glass cleaner sachets and duster (23)



Handling

The iQube scanner is built with very durable and strong components, but care must be taken when handling, moving and operating the system. Since the iQube is a laser scanning device, these procedures must be followed to ensure success in all applications

Lifting

Lid On



Assuming the lid is clipped securely onto scanner body using the four clips

Use either the lifting handles provided at either end of the scanner body or the side handle

Lid Off

Only use the lifting handles provided at either end of scanner body

Storage

When the item is not being used for a period of time:

- Switch off the scanner.
- Disconnect the power lead.
- Disconnect the network lead.
- Clean the glass.
- With support legs folded place the lid onto the scanner body and clip into place.
- Store in a suitable environment (5 deg C to 40 deg C).

Manufacturer Details

The iQube 3D Scanner was manufactured by:

UAB “Elinvision”

Terminal str.3

Biruliskiu Village

Karmelava

Kaunas District

LT-54469

Lithuania

Index

A

Adding a Job • 26

C

Cautions • 7

Compliance • 1

Connecting to the Scanner • 16

D

Deleting a Job • 27

E

Electrical Connection • 12

Electrical Specifications • 3

Export Page • 40

F

FCC • 1

H

Handling • 55

Hardware diagram - legend • 10

Hardware Diagrams • 9

I

Installation • 22

iQube Parts List • 8

J

Jobs Page • 26

M

Maintenance • 55

Maintenance and Handling • 54

N

Network Connection • 14

O

Orientation & Location (Foam Box
Impression) • 50

Orientation & Location (Foot) • 46

Orientation and Location (Cast) • 52

P

Permissible Environmental
Conditions • 3

Power-up the Scanner • 14

R

WEEE • 1

Remove the Cover • 12

S

Safety Precautions • 4

Scan Mode • 37

Scan Model • 30

Scan Page • 28

Scan Settings • 31

Scan Settings (Cast) • 53

Scan Settings (Foam Box Impression)
• 51

Scan Settings (Foot) • 46

Scanner Setup (Cast) • 52

Scanner Setup (Foam Box
Impression) • 48

Scanner Setup (Foot) • 44

Scanning • 43

Scanning a Cast • 52

Scanning a Foam Box Impression • 47

Scanning a Foot • 43

Setting up • 11

Software Installation • 22

System Requirements • 22

T

Technical Specifications • 3

Temperature Range • 3

Test • 23

Test the Connection • 20

U

Understanding Precaution Terms • 5

Understanding Warning Terms • 4

Using the Delcam Orthotic Insoles
Software • 25

W

Warnings • 5